

Claims

What is claimed is:

5 *sub B2* 1. A base station for use in a wireless communication system, comprising:
a plurality of channel unit boards each including a plurality of channel elements for
providing processing operations for signals assigned to multiple carriers of the communication
system, wherein each of at least a subset of the channel elements of at least one of the channel unit
boards are assignable to each of a plurality of carriers of the system.

10 *sub 1* 2. The base station of claim 1 wherein each of the channel unit boards generates a set of
digital in-phase (I) and quadrature (Q) signals for each of the plurality of carriers.

15 3. The base station of claim 2 wherein at least one of the channel unit boards includes a
multiplexer operative to connect a given one of the channel elements to an I and Q signal bus
associated with a given one of the plurality of carriers.

20 4. The base station of claim 3 wherein the I and Q signals generated for a given one of the
carriers by a given one of the channel unit boards is combined within another of the channel units
boards with the I and Q signals generated for the given carrier by the other channel unit board.

25 5. The base station of claim 1 wherein each of at least a subset of the channel unit boards
includes a total of N channel elements, and each of the channel elements may be assigned to one of
up to N carriers of the system.

6. The base station of claim 1 further including a control computer operative to generate one
or more control signals for controlling assignment of the channel elements of the channel unit boards
to the plurality of carriers of the system.

7. The base station of claim 1 wherein the wireless communication system is a code division
multiple access (CDMA) communication system operating in accordance with at least one of an IS-

95A standard, an IS-95B standard, an IS-95C standard with Orthogonal Transmit Diversity (OTD), an IS-95C standard without OTD, a Multi-Carrier (MC) cdma2000 standard, and a Universal Mobile Telecommunications System (UMTS) standard.

5 8. A method of implementing a base station for use in a wireless communication system, the base station comprising a plurality of channel unit boards each including a plurality of channel elements for providing processing operations for signals assigned to a plurality of carriers of the communication system, the method comprising the step of:

10 controllably assigning the channel elements of at least one of the channel unit boards to designated ones of the plurality of carriers of the system, such that different channel elements of the channel unit board are assigned to different carriers of the system.

15 9. The method of claim 8 wherein each of the channel unit boards generates a set of digital I and Q signals for each of the plurality of carriers.

20 10. The method of claim 9 wherein at least one of the channel unit boards includes a multiplexer operative to connect a given one of the channel elements to an I and Q signal bus associated with a given one of the plurality of carriers.

25 11. The method of claim 10 wherein the I and Q signals generated for a given one of the carriers by a given one of the channel unit boards is combined within another of the channel units boards with the I and Q signals generated for the given carrier by the other channel unit board.

 12. The method of claim 8 wherein each of at least a subset of the channel unit boards includes a total of N channel elements, and each of the channel elements may be assigned to one of up to N carriers of the system.

13. The method of claim 8 wherein the assigning step is implemented at least in part using a control computer operative to generate one or more control signals for controlling assignment of the channel elements of the channel unit boards to the plurality of carriers of the system.

5 14. The method of claim 8 wherein the wireless communication system is a CDMA communication system operating in accordance with at least one of an IS-95A standard, an IS-95B standard, an IS-95C standard with OTD, an IS-95C standard without OTD, an MC cdma2000 standard, and a UMTS standard.

10 15. An article of manufacture comprising a machine-readable storage medium for storing one or more programs for use in configuring a base station of a wireless communication system, the base station comprising a plurality of channel unit boards each including a plurality of channel elements for providing processing operations for signals assigned to multiple carriers of the communication system, the one or more programs when executed implementing the step of:

15 controllably assigning the channel elements of at least one of the channel unit boards to designated ones of the plurality of carriers of the system, such that different channel elements of the channel unit board are assigned to different carriers of the system.

16. A base station for use in a wireless communication system, comprising:

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a plurality of channel unit boards, each including a plurality of channel elements for providing processing operations for signals assigned to multiple carriers of the communication system, wherein each of at least a subset of the channel elements of at least one of the channel unit boards are assignable to each of a plurality of carriers of the system; and

25 a control computer coupled to at least a subset of the plurality of channel unit boards, the control computer being operative to assign the channel elements of the channel unit boards to particular ones of the carriers of the system.

17. A base station for use in a wireless communication system, comprising:
a plurality of channel elements for providing processing operations for signals
assigned to multiple carriers of the communication system; and
a multiplexer operative to assign signals from at least a subset of the channel elements
to each of a plurality of carriers of the system, so as to implement a multi-carrier channel pooling
arrangement.

18. A method of implementing a base station for use in a wireless communication system,
the base station comprising a plurality of channel elements for providing processing operations for
signals assigned to a plurality of carriers of the communication system, the method comprising the
step of:

controllably assigning the channel elements to designated ones of the plurality of
carriers of the system, so as to implement a multi-carrier channel pooling arrangement.

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